

NAME

U. S. GOVERNMENT PRINTING OFFICE

8-8451

DATE

4/16/41

Stange Mine Hole #1

- 0 - 5 Reddish brown subangular to well rounded medium to coarse sand cont. a few pebbles.
- 5 - 45 Brown fine dirty sand cont a few coarse sand grains
- 45 - 75 Very finely sandy yellow silt
Db
- 75 - 80 Greenish-brown silty clay
Db?
- 80 - 90 Greenish-tan clayey silt.
Db
sto
- 90 - 100 Greenish-brown compact silty clay

Stange Mine - Hole #12

- 0 - 25 Dirty brown coarse sand containing a few small pebbles, becomes a little finer in lower part.
- 25 - 60 Fine light-brown sand.
- 60 - 100 Tan very finely sandy silt. TD.
- All Db.

NAME

DATE

U. S. GOVERNMENT PRINTING OFFICE

3-8451

0-5	Stange Mine - Hole # <u>2</u> Red sandy clay cont. a little Mn.
5-10	Red ^{fine} medium sand. A few chips of porous test sandstone
10-15	Similar
15-35	V. finely silty yellow silt.
35-40	Similar
40-45	Tan finely sandy silty clay. A few pieces of psilomelane
45-50	Similar with many chips of psilomelane.
50-55	Similar with a little chert
55-60	Similar clay
60-65	Yellow silty clay with a little Mn.
65-75	Dark Khaki clay cont. chips of psilomelane + ss.
75-95	Khaki clay cont. chips + streaks of yellow + white clay.
95-100	Khaki clay cont. chips of laminated pink + white clay. T.D. None of samples in this hole are calcareous.

NAME

U. S. GOVERNMENT PRINTING OFFICE

6-8451

DATE

4/15/91

Stange Mine - Hole # 3	
0 - 5	Very dark brownish-gray subangular to subrounded sand cont. considerable Mn, dark
5 - 10	Fine, brown rounded sand cont. a little less Mn
10 - 15	Fine dark brown sand Grains sub-rounded.
15 - 20	Very fine light-brown sand cont. a few balls of yellow silt.
20 - 25	Fine to very fine light reddish brown sand.
25 - 30	Pinkish-brown very finely sdy silt.
30 - 40	Pinkish-tan silt. cont a few small quartz pebbles (from above?)
Db	
5+0	
40 - 50	Grayish-brown silty clay T.D.
Stange Mine - Hole # 14	
0 - 5?	Rich coffee-colored compact sandy clay - a few pebbles.
5? - 30	Yellow to brown finely sandy silt.
30 - 40	Tan v. finely sandy silt.
Db	
5+0	
40 - 45	Mixture of tan and dark grayish-brown (khaki) silty clay
45 - 50	Grayish brown silty clay T.D.
Drilled sandstone 48' - 50'	

NAME

U. S. GOVERNMENT PRINTING OFFICE

8-8451

DATE

4/15/41

0 - 20	Stange Mine - Hole #4 Reddish-brown subangular to well-rounded fine ^{to very fine} sand. Very Trace Mn. silty
20 - 30	Light brown, very fine subrounded sand
30 - 45	Yellow to tan silt v. finely silty silt.
45 - 50 Db Sto (?) Maybe upper clay	Yellowish brown silty clay. This may still be Becraft, but it resembles Tonoloway except in color. T.D.
0 - 10	Stange Mine - Hole #15 Brown fine to very fine sand - Trace of Mn. A few chips of v.f. grained light gray sandstone
10 - 30	Yellowish to tan very finely sandy silt
30 - 35	Brownish gray silty clay that looks like Tonoloway. (Mis labeled?) Maybe same as 45-50 in #4
35 - 45	Greenish yellow finely sandy silt.
45 - 50	Grayish-Brown silty clay T.D.
10 - 30 30 - 35 35 - 55 All Db.	Stange Mine - Hole #19 ✓ Subrounded Fine to very fine red sand No Mn. 1 piece of quartzite and a piece of pink and white clay noted. Similar sand containing a few lumps of yellow sandy silt Yellow to tan very finely sandy silt. T.D.

NAME *Samples -*

U. S. GOVERNMENT PRINTING OFFICE

6-8451

DATE *4/12/91**Stange Mine Hole #5*

- 0-5'* Fine to very fine light reddish-brown subangular quartz sand containing a few grains of pyrolusite.
- 5'-10'* Same as preceding. Color is of course ~~that~~ a coating on quartz grains.
- 10'-15'* Khaki & light reddish brown silty clay containing a little sand. A few flakes of white Kaolin-like clay.
- 15'-20'* Silty clayey very fine-grained ^{clay} sand. Does not look like Becraft. Some red stain.
- 20'-25'* Similar, but slightly more v.f. sand.
- 25'-30'* Light reddish tan v.f. sdy ~~silt~~ clayey silt. Yellow silt.
- 30'-35'* Similar - A chip of clay that is decalcified limestone.
- 35'-40'* Same as preceding.
Db
S to
- 40'-45'* Similar but darker brown. Contains a little black & dark brown clay that effervesces slightly.
- 45'-50'* Brown clay

NAME Samples W.H.M.

DATE April 12, 1941

U. S. GOVERNMENT PRINTING OFFICE

6-8451

Stange Mine Hole # 7 ✓

0-5'

No sample

5'-10'

Light reddish-brown fine to coarse
subangular earthy ^{quartz} sand No Mn.

10'-15'

Fine to coarse, sub-angular, quartz
sand, yellow to buff, some silt.

15'-20'

Buff to reddish earthy rounded to
subangular quartz sand containing
a few cubed quartz crystals.
A little Mn stain.

20'-25'

Yellowish-brown earthy sand-rounded
to subangular. Several pieces of
noncalcareous quartzite, containing
a few small pebbles up to 1/16" diam.

25'-30'

Fine to medium, yellowish-brown to
orange ^{silty} loose quartz sand containing
a few pieces of ~~compact~~ tightly
cemented sandstone - prob. quartzite

30'-35'

Light brown loose subrounded fine sand
containing chips of quartzite & very
porous white fine-grained sandstone

35'-40'

Same as preceding.

7

22

3038
95

2943

3001
40

2961

NAME Samples - WHM.

U. S. GOVERNMENT PRINTING OFFICE

6-8451

DATE 4/12/41

Stange Mine Hole # 7 (cont.)

40'-45'

Same as preceding. A few chips of red clayey sand like gongee filling in open cut. Easier drilling than above

45'-50'

Same as preceding. A few large chips of ~~compacted~~ ^{light gray} very porous sandstone, and one small ball of light brown clay.

50'-55'

Friable porous subangular fine to very fine-grained ^{clean} quartz sandstone. A few pieces of quartzite. Bulk of sample consists of reddish brown silty earthy fine to very fine sand. A little Mn stain

55'-60'

Similar, but containing many pieces of bright red earthy fine to very fine soft sandstone.

60'-65'

A combination of preceding two samples

65'-70'

Yellow + buff silty clay containing white streaks. One fragment of disintegrated chert? (This may be Tonoloway ls.)

NAME Samples W.H.M.

DATE 4/12/41

U. S. GOVERNMENT PRINTING OFFICE

6-8451

Stange #7 (cont.)

- 70'-75' Finely sandy & silty yellow clay containing some white kaolin-like material. Somewhat plastic when wet. Not calcareous.
- 75'-80' Same as preceding.
- 80'-85' Silty, clayey, very fine grained sand plastic when wet.
- 85'-90' Gray to buff very finely sandy, silty clay. One piece of psilomelane, possibly from above. Not calcareous.
- 90'-95' Like preceding.
 Db
 5+0
- 95'-100' Light olivedrab or dark khaki silty clay - a very characteristic clay residuum after limestone. Widely scattered sd. grains.
- 100'-105' Same as preceding. Not calc.
- 105'-110' Same as preceding.
- 110'-115' Slightly greenish, grayish khaki clay containing scattered subrounded quartz grains and a few ~~fragments~~ fragments of white clay. Not calcareous. Like preceding, except that color is a little grayer.

NAME

U. S. GOVERNMENT PRINTING OFFICE

6-8451

DATE

4/12/41

- | | |
|---------|--|
| 11 | Stange Hole # 7 (cont) |
| 115-120 | Like preceding, but contains a few small balls of brick red clay like the gouge in large open cut. Large lumps of Khaki clay are dusted with red clay |
| 120-125 | Same as preceding. One fragment of bedded clay resembles decalcified chip of Cedar Creek Fossiliferous ls. |
| 125-130 | Same as preceding without the red dust. |
| 130-135 | Same as preceding with a little red stain (Shaly ls according to Moon) |
| 135-140 | Slightly darker Khaki clay like preceding containing pellets & chips of dark greenish-gray clay and that contains small grains that effervesce. This is the just below the base of the zone in which weathering has removed all lime. This ^{sample} zone ^{from} is the transition zone between entirely weathered and fresh ls. |
| 140-145 | Like preceding. |
| 145-150 | Like preceding but contains larger ^{knots of} calcareous clay |

NAME

Samples - W.H.M.

U. S. GOVERNMENT PRINTING OFFICE

6-8451

DATE

4/12/41

Stange # 7 (cont.)

154-153

Dark Khaki clay, containing a little red clay. Clay very calcareous & contains chips of dark greenish-gray limestone.

Total Depth.

4/15/41

Stange Mine - Hole # 16

Db

9-20

Fine light brown subrounded sand.

20-35

Very finely sandy light tan silt.

35-50

Similar, but contains clay chips of

white + yellow clay
45-50 Drilled like ss.

50'-55'

Very fine subrounded yellow sand. T.D.

Stange Mine - Hole # 13

5-15

Reddish-brown very slightly clayey fine to very fine sand cont. a little MnO₂.

15-25

Light brown v.f. sdy silt.

25-35

Similar, but contains chips of v.f. grained porous white ss.

35-40

Very finely sdy silt - pinkish tan

40-50

Khaki or grayish-brown clay containing chips of contorted laminated clay. Not calcareous T.D.

NAME

U. S. GOVERNMENT PRINTING OFFICE

5-8451

DATE

4/16/41

Stange Mine - Hole #9

- 6 - 10 Dark brown fine to medium sand
containing a few small pebbles
- 10 - 15 Light brown silty very fine sand
- 15 - 25 Yellow v. finely sandy silt ← color change (Moon)
- 25 - 30 Brownish gray silty very finely sandy
clay. Looks like Tonalony, may be same
bed as 10-15 in Hole #20.
- 30 - 40 Brownish-yellow silt.
- ~~Db~~
~~Exp~~
- 40 - 45 Mostly brownish yellow silty clay, but
contains chips of brownish-gray clay
Contact is probably in this
interval.
- Db
- STO
45 - 50 Olive drab silty clay - T. 12.

Stange Mine - Hole #8

- 2 - 10 Dirty coarse sand containing pebbles
of sandstone
- 10 - 50 Fine brown sand containing a few
pebbles of sandstone from above
- All upper
Db.

NAME

U. S. GOVERNMENT PRINTING OFFICE

3-8451

DATE

4/15/41

0-20	Stange Mine - Hole # <u>10</u> ✓ Fine sand impregnated and in part replaced by pyrolusite. Samples are brownish black to blue-black. A few chips of soft white sandstone impregnated with Mn. A few broken quartz pebbles.
20-30 All Db.	Yellow very finely sandy silt. Some contains considerable clay binder. T.D. 35-40' clay
All Db. 0-5	Stange Mine - Hole # <u>21</u> ✓ Light brown clayey silt containing scattered sand grains + a little Mn
5-20	Light tan silt cont. scattered sd grains
20-30	Similar, but saw some quartzite chips. T.D.
0-5 5-10 10-20 20-30	Stange Mine - Hole # <u>24</u> ✓ Fine sandy loam cont. considerable Mn. Finely sandy silt cont. some Mn and clay. Buff silt. Similar silt that contains a few chips of khaki (grayish brown) clay. Contact may be in this interval.

NAME

U. S. GOVERNMENT PRINTING OFFICE

6-8451

DATE

4/15/41

Stange Mine - Hole # 11

0 - 10 Fine brown sub-rounded sand cont. considerable Mn.

10 - 25 Brownish-yellow silt cont. a little Mn.

25 - 40 Light buff silt, containing chips of gray clay. No Mn.

40 - 45 A mixture of yellow silt, brown clay & grains of red clay. ← ^{color} change

Db
5 + 0
45 - 50 Grayish brown clay cont. chips of yellow silt. T.D.

Stange Mine - Hole # 23

0 - 5 Fine to medium black sand cont. considerable Mn.

5 - 10 Brown clayey sand containing a little Mn.

10 - 35 Light brown sandy silt. A very little Mn. in upper part.

35 - 40 Very fine reddish-brown sand

40 - 55 Pinkish-tan silt.

Db
5 + 0
50'

55 - 60 Grayish-brown clay T.D.

Moon puts Buckfat at 50' where color change was noticeable

NAME

U. S. GOVERNMENT PRINTING OFFICE

8-8451

DATE

4/16/41

	Stange Mine - Hole # 18
5-9	Red clay containing fine to coarse angular quartz grains.
10-15	Similar.
17-25	Reddish-brown silty fine to coarse sand containing a few well-rounded quartz pebbles up to 1/4" long.
25-50	Reddish-brown fine subangular sand containing rounded pebbles of white quartz sandstone and quartzite. One fragment of ss (25-30) is 1 1/2 inches long. T.D.
upper All Db	

	Stange Mine - Hole # 20
5-10	Tan finely sandy silt.
10-15	Gray silty clay. Looks like Tonoloway clay but is underlain by silt.
15-20	Tan silt containing a little Mu.
20-25	Yellowish-brown finely sandy silt.
Db	
Sto	
25-50'	Grayish-Brown silty clay Contains a few chips of purple, and white, and yellow clay. Not calcareous. T.D.

NAME *Samples - W.H.M.*

U. S. GOVERNMENT PRINTING OFFICE

6-8451

DATE

4/14/41

0-5'	Stange Mine - Hole # <u>22</u> Buff sand containing some quartz gravel and a little Mn.
5'-10'	Dark buff very fine sand.
10'-30'	Dark yellow or tan very finely sandy silt.
30'-50'	Yellow to tan very finely sandy silt.
Ob	
Stb	
50'-55'	Grayish brown very finely sandy clay. One piece of pulverulent chert
55-60	Brown silty clay containing chips of yellow silty clay
0-5'	Stange Mine Hole # <u>27</u> Brown silty medium to fine sand
5'-10'	Similar. A few chips of the porous fine sandstone.
10'-15'	Similar Trace Mn.
15-20'	Similar with chips of sandstone. In general, more silty.
20-25'	Mostly light brown silt.
25'-30'	Light brown silt. Grains are angular.

NAME *Samples - W.H.M.*

U. S. GOVERNMENT PRINTING OFFICE

8-8451

DATE *4/19/41**Stange Mine Hole #29*

- 0-5* Fine powdery silt (brown) containing some Mn.
- 5-10'* Dark tan powdery silt.
- 10-15' ^{Db}* Similar. Some red (burnt?)
- 15-20' ^{Db}* Similar - A little clay binder.
- 20-25'* Similar - contains a little v.f. sand.
- ^{Db}
5 to 7* Prof. all Db
- 25-30'* Very finely sandy silty clay T.D.

Stange Mine - Hole #25

- 0-15* Reddish-brown fine sand. A few $\frac{1}{16}$ " pebbles
- 15-25* Similar, but in general a little finer
- 25-50* Yellow ^{very} finely sandy, slightly clayey silt.
- 50'-60'* Similar, but contains some psilomelane.
- 60'-65'* Similar, but contains a few clay chips that may be Tonoloway
- ^{Db}
5 to*
- 65-75* Brown sandy clay
- T.D.

NAME

Samples - W.H.M.

U. S. GOVERNMENT PRINTING OFFICE

6-8451

DATE

4/14/41

Stange Mine Hole # 26

0-5'

Fine khaki silty clay.

5-10'

Yellowish-Brown silt containing scattered lumps of MnO_2 and many scattered sand grains.

10-15'

Similar.

15'-20'

Fine to coarse yellow quartz sand and a little quartzite gravel in silt. No. MnO_2 .

20'-25'

Similar

25'-30'

Similar, but contains a little Mn.

Sto

30-35'

Khaki silty clay

35-40'

Similar containing chips of limestone T.D.

3 001

2 961

4 0

NAME

Samples - WHM,

DATE

4/12/41

U. S. GOVERNMENT PRINTING OFFICE

6-8451

Stange Mine - Hole #28

- 0'-5' Dark reddish brown ~~very~~ finely sandy clay containing numerous grains of MnO_2 .
- 5'-10' Same as preceding - less sand.
- 10'-15' Clay like preceding but very little sand + MnO_2 .
- 15'-20' Khaki-colored silty clay containing a ^{few} ~~little~~ limonite nodules. Plastic when wet.
- 20'-25' Light tan silty clay, containing a little red stain.
- 25'-30' Grayish tan silty clay cont. a few fine quartz grains and many specks of white clay. One piece of pyrochlore (from above?).
- 30'-35' Clay Similar to above.
- 35'-40' Very fine quartz sand in a matrix of clay like above.
(Color change)
- 40'-45' Khaki silty clay containing a few chips of white & of pink tightly cemented very fine-grained sandstone or quartzite.
- 45'-50' Khaki silty clay containing contorted streaks of yellow & of dark greenish gray clay. A few pellets of white kaolin-like clay.

NAME

Samples - U.H.M.

DATE

4/12/41

U. S. GOVERNMENT PRINTING OFFICE

6-8451

	Strange # 28
30'-55'	Khaki silty clay, slightly darker than above. Not calc. Some red stain
55'-60'	Same as last sample. No red stain
60'-65'	Same as preceding
65'-70'	Same as preceding
70'-75'	" " "
75'-80'	Same silty Khaki noncalc. clay.
80'-85'	Khaki clay containing chips of decalcified ls + one angular pebble of limonite containing a psilomelane core. Much red stain.
85'-90'	Khaki silty clay with a red stain
90'-95'	Same as preceding sample
95'-100'	Same as preceding. All these samples contain hard scattered grains that look like psilomelane - prob. from above.
100'-105'	Similar - Not calc.
105'-108'	Similar but contains small calc. streaks.
107'-108'	Washed - Made up of chips of greenish gray ls. - T.D.

NAME Samples W.T.M.

U. S. GOVERNMENT PRINTING OFFICE

6-8451

DATE

4/14/41

Stange Mine - Hole # 30

- 0-5 Coffee-colored loamy medium sand
- 5-10 Khaki Fine sand containing many grains of MnO_2 .
- 10'-15' Similar but less MnO_2 .
- 15'-30 (3) All Khaki fine sand containing a little MnO_2 .
- 30'-35' Light tan ^{very} fine silty sand. No MnO_2 .
- 35'-40' Similar
- 40'-45' Similar, but contains a few fragments of the very porous fine sandstone.
- 45'-50' Similar.
- Pb
5 to 7
- 50'-55' Similar matrix containing flakes of dark greenish brown clay

Moon thimble all Becraft.

NAME *Monroe-Samples*
U. S. GOVERNMENT PRINTING OFFICE 6-8451

DATE

*4/14/41**Stange Mine Hole #31*

- | | |
|---------------|---|
| <i>0-5'</i> | <i>No sample</i> |
| <i>5-10'</i> | <i>Dark reddish-brown fine to medium sand</i> |
| <i>10-15'</i> | <i>Brick red sand containing pebbles up to $\frac{1}{8}$" long</i> |
| <i>15-20'</i> | <i>Similar sand with pebbles up to $\frac{1}{4}$ in long. Pebbles are mostly quartz.</i> |
| <i>20-25'</i> | <i>Light reddish-brown fine to coarse well rounded quartz sand.</i> |
| <i>25-30'</i> | <i>Light reddish brown Light brick red medium-sand containing a few pebbles.</i> |
| <i>30-35'</i> | <i>Similar - A few chips of porous medium-grained sandstone</i> |
| <i>35-40'</i> | <i>Light brick red medium silty sand.</i> |
| <i>40-45'</i> | <i>Similar</i> |
| <i>45-50'</i> | <i>Light brown medium sand - a few chips of clay, T.D.</i> |

NAME *Samples WH19*

U. S. GOVERNMENT PRINTING OFFICE

6-8451

DATE

*4/14/41**Stange Mine Hole #32*

- 0-5* Brick red loose fine to medium silty sd.
- 5'-10'* Similar sand containing considerable MnO_2 grains and numerous small well rounded pebbles of quartzite,
abdr. Don
- 10'-15'* Similar sand containing MnO_2 and some pink & white clay.
- 15'-20'* Red clay containing grains of white & yellow clay and scattered quartz & manganese grains.
- 20'-25'* Light salmon silty clay containing many grains of white clay and chert fragments. a little medium sand.
Don
Db
- 25'-30'* Fine to coarse sand containing a few pebbles of quartzite - a little chert from above
Salmon-red
- 30'-35'* Fine to coarse sand and fine gravel.
(4 hrs to drill) Many of grains are nearly spherical - (may not be quartz.)
- 35'-40'* Similar
- 40'-45'* Somewhat more homogeneous ^{red} medium sand
- 45'-50'* Fine to medium dusty red sand.
T. D.

NAME

U. S. GOVERNMENT PRINTING OFFICE

3-8451

DATE

4/21/41

Stange Mine - Hole #33

0-10

Red silty clay containing grains of pink & white chert and a little Mn.

Don
Db

10-30

Reddish brown ^{fine to} coarse sand and fine gravel containing chips of hard sandstone

30-50

Reddish brown fine sand, lighter color in lower part.

Stange Mine - Hole #34

0-5

Tan coarse sandstone and fine pebbly conglomerate

5-30

Similar but brownish-tan becomes redder downward in section.

30-65

Fine gray sand containing a few small quartz pebbles - Trace Mn. Chips of fine-grained sandstone

65-78

Grayish- and yellowish tan & very finely sandy silt containing in lower part a few chips of very fine-grained sandstone

Top of yellow silt at 67' (Moon)

Poor sample from 75-78

NAME

U. S. GOVERNMENT PRINTING OFFICE

6-8451

DATE

4/21/41

Stange Mine-Hole # 35

0 - 5	Brownish-tan coarse sand & fine gravel
5 - 20	Fine light-reddish-brown fine sand containing a few coarse grains
20 - 50	Fine Dark gray fine sand containing a little Mn. A few chips of hard sandstone
50 - 55	Yellow ^{very} finely sandy silt
55 - 64	Light cream-colored very finely sandy silt containing chips of very fine-grained sandstone T.D.
All Db.	

NAME *Location of*
U. S. GOVERNMENT PRINTING OFFICE*Holes*
8-8451

DATE

From Moon.

No.	Alt	Coord	N	E
✓ 1	3045		5010	4863
✓ 12	3042		4990	4864
✓ 8	3044		5107	4942
✓ 18	3041		5088	4844
✓ 7	3038		5065	4747
✓ 20	3013		5170	5234
✓ 9	3021		5162	5137
✓ 19	3045		5127	5040
✓ 13	3031		4895	5402
✓ 14	3034		4926	5495
✓ 15	3029		4952	5593
✓ 16	3029		4956	5693
✓ 3	3046		5000	5479
✓ 4	3054		5036	5571
✓ 5	3050		5050	5666
✓ 23	3026		4894	5303
✓ 24	3028		4997	5370
✓ 10	3035		5191	5337
✓ 21	3034		5212	5432
✓ 22	3059		5255	5625
✓ 11	3049		5233	5529
✓ 2	3072		5186	5692
✓ 25	3074		5201	5740
✓ 26	3005		5284	5315
✓ 27	3001		4853	5040
✓ 28	3001		4939	5044
✓ 29	2998		5007	5116
✓ 30				
✓ 31				
✓ 32				
33				